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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|------------------------------|-------------|----------------------|---------------------|------------------|
| 10/786,765 | 02/25/2004 | Kirk D. Prall | 400.266US01 | 2857 |
| 27073 | 7590 | 01/12/2006 | EXAMINER | |
| LEFFERT JAY & POLGLAZE, P.A. | | | PHAM, HOAI V | |
| P.O. BOX 581009 | | | ART UNIT | PAPER NUMBER |
| MINNEAPOLIS, MN 55458-1009 | | | 2814 | |

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

32

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|------------------------------|-------------------------------|--------------------------------|--|
| Office Action Summary | Application No. 10/786,765 | Applicant(s) PRALL, KIRK D. | |
| | Examiner Hoai v. Pham | Art Unit 2814 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-103 is/are pending in the application.
- 4a) Of the above claim(s) 7,8,11,19,23,24,32,34-95,98,99,102 and 103 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-18,20-22,25-31,33,96,97,100 and 101 is/are allowed.
- 6) ☒ Claim(s) 1,2,9,10,12 and 13 is/are rejected.
- 7) ☒ Claim(s) 3-6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of figures 1-2, claims 1-6, 9-10, 12-18, 20-22, 25-31, 33, 96-97 and 100-101 in the reply filed on October 20, 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitation in claims 4, 14, , 21, 25, 96-97, and 100-101 (such as a second contact penetrating through each of the layers of memory material in a second plane substantially perpendicular to the first plane so as to electrically interconnect the layers of memory material in the second plane (claim4); a plurality of first contacts passing through each of the plurality of layers of memory material, each first contact in electrical communication with at least one memory cell of a column of memory cells in each of the plurality of layers of memory material (claim 14)...) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

Art Unit: 2814

replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Hilbert [U.S. Pat. 6,377,504] Applicant IDS.

With respect to claim 1, Hilbert (fig. 4, col. 8) discloses a memory array comprising:

two or more layers (102) of memory material, each layer of memory material comprising an array of memory cells (104, 105); and

a first contact (121 or 122) penetrating through each layer of memory material in a first plane and electrically connected to each layer of memory material so as to electrically interconnect the layers of memory material in the first plane.

With respect to claim 2, Hilbert (col. 7, lines 19-25) discloses that a dielectric layer disposed between successive layers of memory material.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hilbert [U.S. Pat. 6,377,504] Applicant IDS in view of Rowlandson et al. [U.S. Pat. 6,636,442].

With respect to claim 9, Hilbert substantially discloses all the limitation as claimed above except the memory cell is a floating gate transistor. However, Rowlandson et al. discloses that it is conventional in the art for the memory cell included a floating gate transistor (100) (see fig. 1, col. 1, lines 17-20). Therefore, it would have been obvious

to one ordinary skill in the art to have floating gate transistor as taught by Rowlandson et al. into the device of Hilbert to form non-volatile memory cells.

With respect to claim 13, Hilbert substantially discloses all the limitation as claimed above except the layers of memory material comprise polysilicon. However, Rowlandson et al. discloses that polysilicon and their uses are well-known in the art for forming floating gate transistor (204) (see fig. 2, col. 1, lines 29-30). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to select polysilicon as known materials, as taught by Rowlandson et al., into the device of the Hilbert to form the floating gate transistor. Moreover, selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co., Inc. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

8. Claims 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hilbert [U.S. Pat. 6,377,504] Applicant IDS in view of Edwards et al. [U.S. Pat. 6,937,248].

With respect to claim 10, Hilbert substantially discloses all the limitation as claimed above except the memory cell is thin film transistor. However, Edwards et al. discloses that it is conventional in the art for the memory cell included thin film transistor (70) (see col. 4, lines 48-49). Therefore, it would have been obvious to one ordinary

skill in the art to have thin film transistor as taught by Edwards et al. into the device of Hilbert to form a memory capability integrated with the pixel structure.

With respect to claim 12, Hilbert substantially discloses all the limitation as claimed above including the memory array is DRAM or different memory cell types. Hilbert does not mention the memory array is a read only memory array (ROM) or a static random access memory array (SRAM). However, Edwards et al. discloses that it is conventional in the art for the memory array is ROM or SRAM (see col. 6, lines 27-28). Therefore, it would have been obvious to one ordinary skill in the art to have ROM or SRAM as taught by Edwards et al. into the device of Hilbert to form a memory array for operate read and write function.

Allowable Subject Matter

9. Claims 14-18, 20-22, 25-31, 33, 96-97, and 100-101 allowed.
10. Claims 3-6 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoai v. Pham whose telephone number is 571-272-1715. The examiner can normally be reached on M-F.

Art Unit: 2814

12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



HOAI PHAM
PRIMARY EXAMINER